SOUTHEAST EDITION

ELECTRICITY ON THE FARM *Magazine*

APRIL 1959

Electric Home Heat *page 4*

Families of Small Appliances *page 19*

Processing Beef Cattle Feed *page 30*

PUSH-BUTTONS—symbol of modern mechanized choring, where motor power replaces sweat and brawn. (see pg. 8)

Here's better living for farm families...

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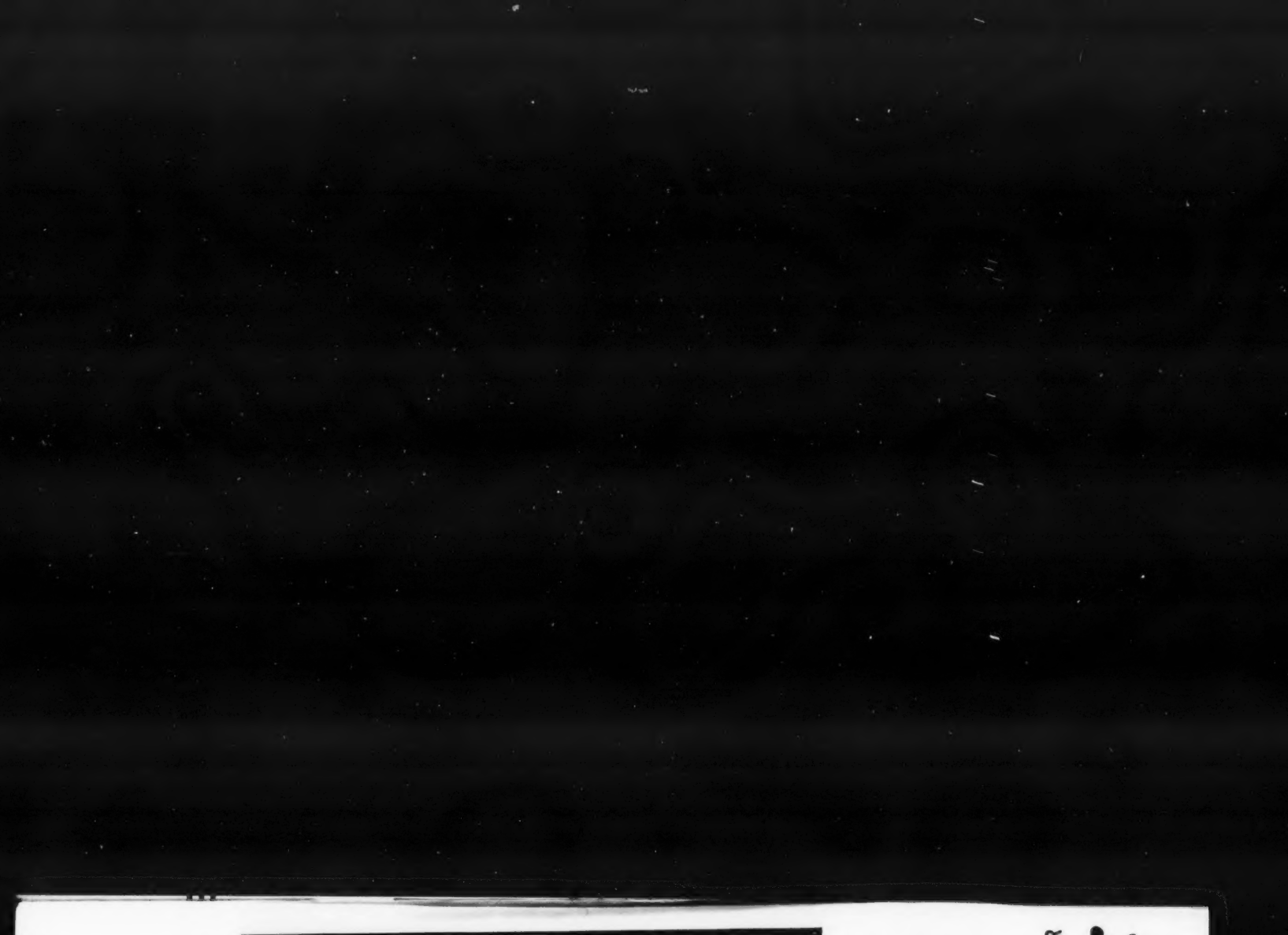

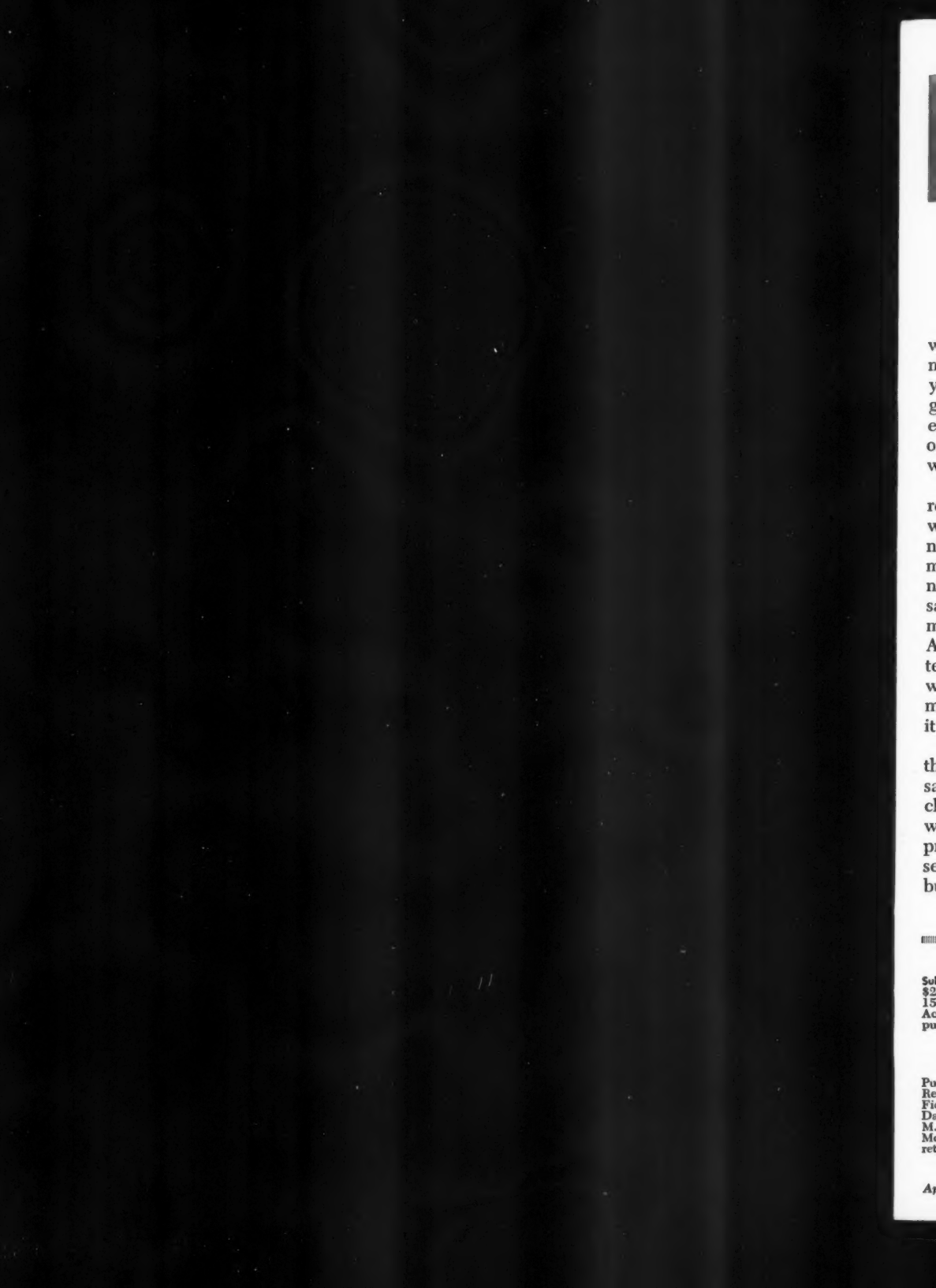

A GOOD FARM SHOP IS AN ASSET

Chances are that today's farm folks don't work any harder or any longer or with any more desire than farm people did a hundred years ago. Yet their output is fabulously greater. The average farmer is producing enough food and fiber for himself and twenty-odd others. It is difficult to know exactly what the figure is. It keeps going up.

Why this increase? There are at least three reasons. Agricultural scientists have come up with improved crop varieties, new fertilizers, new insecticides and improved techniques that make for higher production per unit. Engineers and manufacturers have designed labor-saving equipment, much of it electrical, that makes for higher production per man-hour. And farmers—aided by vocational agriculture teachers, county agents and other professional workers—have accepted these new developments and put them to use because they know it is good business.

One of the inevitable results of this trend is that today's farmer is a capitalist with thousands of dollars invested in buildings and machinery. He has a maintenance problem that was undreamed of by his grandparents whose preparation of equipment for a new planting season may very well have been as simple as buying a new plow point and a pair of lines.

It follows that a well-equipped farm shop, once regarded as a luxury, now is a very real asset. It will save you time and money. Quite often we hear one of our friends remark about the time he saved at a critical work period by being equipped to make on-the-farm repairs. It is not unusual that with an electric welder a broken part can be repaired in place quicker than the part itself can be taken off. There are many other electric tools that will serve you equally well in your shop.

SATISFY THE WHOLE FAMILY

As winter passes and memories of it are still fresh in mind, it is a good time to ask yourself the question: Will I use the same heating system again next year? Am I weary of cutting firewood, stoking the furnace, or of hearing the wife's complaints about soot, dust and dirty draperies that go along with some heating systems?

Many homeowners already have made their decision. Next winter will find them with a new heating system. It will be electric. There are good reasons for the choice. Electric heat is automatic, safe, clean, efficient, economical. It saves space. It is easy and inexpensive to install in old or new houses.

If your family is one of those where Dad and Mom like their bedroom warmer while son and daughter prefer a lower temperature, you can satisfy everyone with electric heat. Thermostats in each room are so simple that a child can set the dial.

There are several types of electric heating from which you can choose. You can learn more about these by reading our feature on page 4. Plan now to enjoy the luxury of electric heating next winter.

A REUBEN H. DONNELLEY PUBLICATION

SOUTHEAST EDITION

ELECTRICITY ON THE FARM *Magazine*

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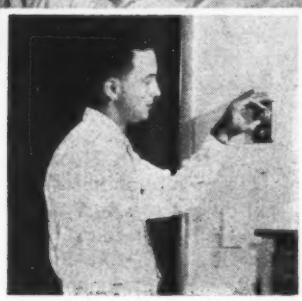
Ceiling radiant heat is chosen by many new-home builders. Heating cable is embedded in plaster or between sheet rock layers. Thermostat on wall is only visible evidence of heating system which gives completely uniform heat.



If you're remodeling, building a new home, or just adding a room . . . lick all your heating problems with

ELECTRIC HOME HEAT

By T. R. INGRAM

You can have the heat of the future in your home today. Thousands of families already are enjoying practical electric heat, and they just can't say enough good things about it. It costs no more than conventional systems using other fuels. In fact, it probably will save you money.

Features You'll Like

Here are some features of electric heat you will like:

1. Low installation cost for a completely automatic heating system for the entire house.

2. Economical operation. All electricity used in house heating is immediately converted into heat. No energy loss.

3. Individual room temperature control. You can have exact desired temperature in every room. It is as simple as dialing the thermostat.

4. Safety. When properly installed, it is as safe as the light you read by. No danger of fire or of children being burned.

5. Cleanliness. Absence of smoke, flames, soot or odors means a healthy atmosphere and less work for the housewife in cleaning rugs, draperies or upholstery.

6. Fast, quiet operation.

7. Saves space. Does not interfere with furniture placement.

8. Minimum services or upkeep required.

After you have decided to use electric heat, avoid a hasty, haphazard installation. Plan carefully. Your power supplier or a reputable electric heating dealer will be glad to advise you.

Estimated Annual Heating Bills With Electric Home Heat

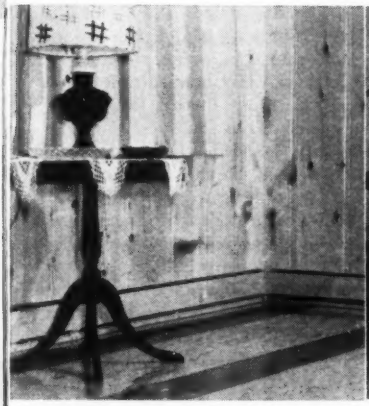
Floor Area Sq. Ft.	Approx. Kw. Req'd.	3000 Degree Days	3500 Degree Days	4000 Degree Days	4500 Degree Days	5000 Degree Days
800	6.5	$ 72	$ 84	$ 96	$108	$120
1000	8	90	105	120	135	150
1200	10	108	126	144	162	180
1400	11.5	126	147	168	189	210
1600	13	144	168	192	216	240
1800	15	162	189	216	243	270

Note: Costs based on 1½¢ cost per KWHr for electric service. Adjust estimated costs proportionally for different rates.

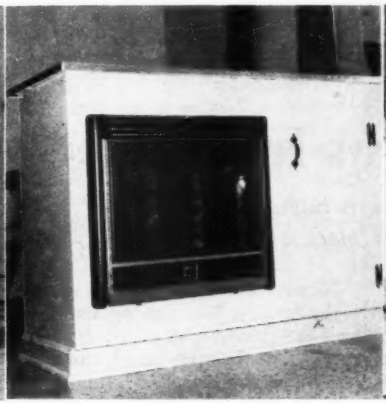
See adjoining chart for average degree day ratings for representative cities in Southeast. Local figures for planning are available from weather stations, builders, or power suppliers.

Average Degree Days Per Year

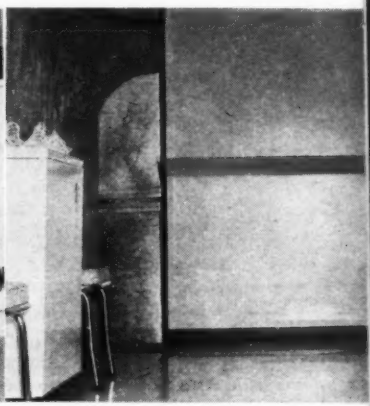
Area	Degree Days
Alabama, Birmingham	2650
Georgia, Atlanta	3000
Savannah	1700
Mississippi, Corinth	3100
Vicksburg	2100
North Carolina, Ashville	4300
Charlotte	3300
Raleigh	3300
South Carolina, Columbia	2500
Greenville	3100
Virginia, Norfolk	3400
Richmond	4000
Roanoke	4200



Baseboard heat is popular for existing homes. Units can replace baseboard or be attached to it; go around perimeter of room; radiate and circulate heat.



Open element space heaters come in a variety of sizes for almost any room; have low installation cost, may be used in ceiling or wall; have own controls.



Heat pumps give year-round comfort; heat in winter, cool in summer; completely automatic. Forced air system brings in fresh, filtered air.

Insulation a Must

Proper insulation is essential to the success of electric heating systems. A general recommendation is for six inches of insulation in the ceiling, four inches in the outside walls, and two inches under the floor. The insulating material should have a vapor barrier installed toward the heated area.

By reducing heat losses, insulation pays by both reducing the size of heating system required and reducing operating costs. If you are planning a new home, another way to economize on your heating cost is to keep glass areas or window sizes to a minimum.

What kind of electric heat? The answer to that question is one that will be influenced by individual situations and personal preferences. But there are several types from which you may choose, including baseboard, ceiling radiant, open element, forced warm air and heat pump.

Operating Cost

The operating cost of any heating system varies with family habits, the desired indoor temperature, type of building construction, and geographical location. Information in the accompanying table will serve to help you estimate the approximate operating costs for resistance type electric home heating in your area. It is assumed insulation as recommended will be used along with weather-stripped doors and windows.

You are sure to enjoy the ease and comfort of electric heating. It will work equally well whether you are remodeling your present home or planning a new one. Consult with your power supplier and dealer to work out a well-planned system to fit your needs. □ □

Drying system serves twelve crop-storage bins on Segars' farm. System forces unheated air through the grain via metal ducts and 5 hp fan in foreground.

Dried Grain Stays Fresh Longer

Germination remains high, losses low, with unheated air electric drying

No lost grain in storage . . . No low-germination grain. That's the experience of R. V. Segars of Oswego, South Carolina since he has used storage bins and electric drying. What's more, he has reduced field losses by drying grain harvested with high moisture content.

"We have dried corn with moisture up to 26%," he declares. "It took five or six days, running the fans six hours in the middle of the day."

Segars has 12 metal storage bins, each unit with 2200-bushel capacity. These are located compactly in two rows of six, and tied into a single suction-type drying system. A 26-inch duct extends between the rows, with 14-inch ducts branching off to each bin. Grain is dried by fresh, unheated air, drawn downward through it by a centrifugal fan driven by a 5 hp, 1750 rpm electric motor.

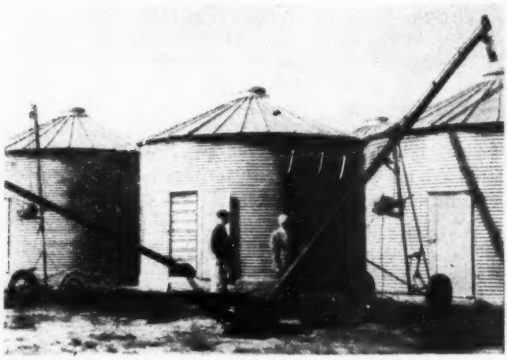
Drier Can Serve 8 Bins

The drier will serve up to eight bins at a time, Segars says. There is a valve control for opening or closing the duct to each bin. When a crop is being dried, the tops of the bins are opened to permit free flow of air. Otherwise, Segars keeps them closed.

Last year the Carolina farmer stored and dried 30,000 bushels of grain and 10,000 bushels of soybeans. In doing so he used 2080 KWHrs of electricity—just a little more than ½ KWHr per bushel. That included the electricity needed to run portable conveyors which loaded and unloaded the bins.

Segars gives the drying system credit for saving a peanut crop. Hurricane rains fell for a week while the peanuts were on the ground. But when the rains stopped, he finished the harvest, dried the peanuts, and avoided what had looked like a lost crop.

What did he do before he got the storage bins and drier? "We used six or eight men about five hours a day for a week to turn the grain with shovels and stir it with sticks." □ □



Portable conveyors with 3 hp motors are used for loading and unloading bins. Each conveyor does the work of two men.

Periodic inspections assure Segars grain is dry enough to resist spoilage. If grain is damp, crop drier is ready for use.

Cows Know The Difference . . .

Barn-Cured Hay Is Better

A hay drier is a handy thing to have around the farm, says J. W. Arthur of Rustburg, Virginia. He has found it can be used for drying other crops as well as curing hay.

Used Hay Drier On Corn

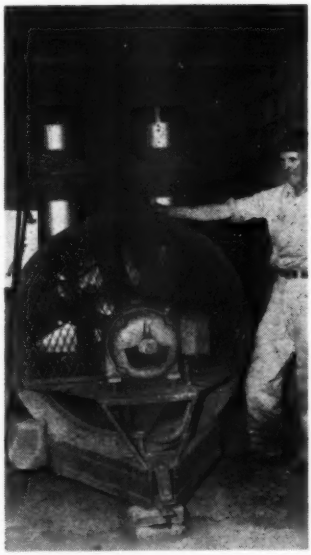
He recalls that in 1957 he suffered a heavy loss of corn by leaving it in the field to dry. Wind and rain beat many stalks to the ground, out of reach of his mechanical picker. But 1958 was a different story. He harvested the corn earlier while the moisture content was higher. "I got it all," Arthur declares. "And I dried it with my hay drier."

The hay drier is a relatively new piece of equipment on the Arthur farm. It was bought, he says, because "I'd pay $10 extra to get barn-cured hay any day. Put field-cured and barn-cured hay in front of my cows and they'll pick out the barn-cured. They eat more of it."

What difference does barn-curing make? Arthur says there is little leaf loss, no sun-bleaching, no musty or moldy odor.

He uses a hay conditioner in the field, cuts in the morning and bales the afternoon of the same day. To make it easier to handle the hay while it is green, he makes half-bales.

The concrete block structure in which his hay is dried will hold 1200 bales. It has a 30 by 24-foot drying area with a galvanized metal floor on which hay or grain is placed. Air is blown into an enclosed area beneath the floor and forced upward through small holes in the metal.



48-inch fan, driven by 7½ hp motor, forces air into enclosed area beneath drying area and upward through holes in galvanized metal floor. Air can be heated for drying on damp days.

Heats Air for Hay Drying

For hay that is cut in the spring, Arthur says he usually heats the air for 48 to 60 hours. For summer cuttings, he says 24 hours usually is long enough. For grain, he seldom uses heated air. Instead, he operates the fan on clear, dry days.

Arthur's drier was hardly installed before its value was demonstrated. He says one of his neighbors had 250 bushels of grain that a miller refused to accept because of high moisture content. "We put it in the barn and turned on the drier for a couple of days," Arthur recalls. "When he took it back, the miller said the grain was in perfect condition." □ □

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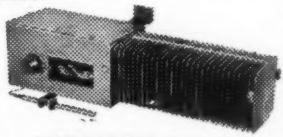

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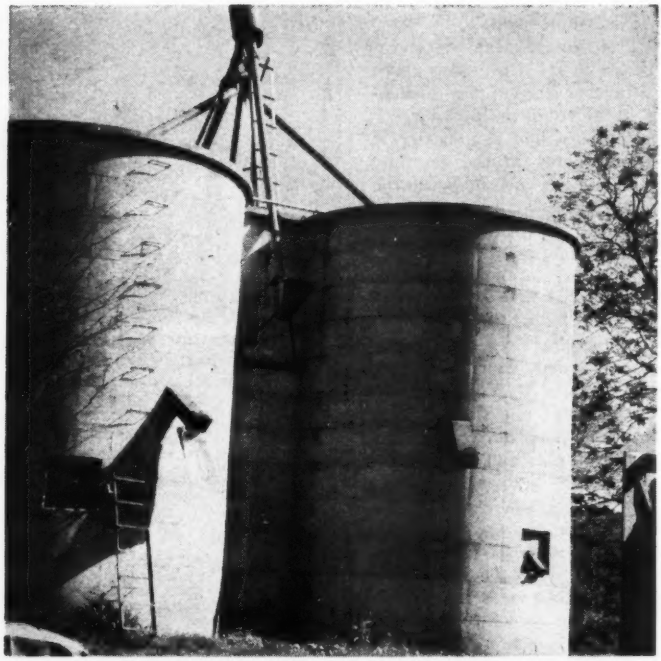
No "Cut" For Middle-Man From This Poultry Farm!

On-farm feed and egg processing lets farmer keep bigger share of profit



By ALBERT MORRIS, JR.

One way farmers can get a bigger share of the consumer food dollar is to do more on-farm processing of their products.

Just what can be done along this line is demonstrated at Springdale Farms by the Pickler family of New London, North Carolina. Their field crops are grains which they process into poultry and hog feeds. Their main market product is eggs from 25,000 layers. They wash, candle, grade and carton eggs for delivery directly to retail outlets. Electricity has a big hand in the whole operation.

Grain is brought from the field in trucks. Portable auger conveyors driven by ¾ hp electric motors unload it into a cleaner, then move it to a hopper on the way to storage. The Picklers store up to 25,000 bushels in four concrete bins. A 2 hp motor atop the bins drives a conveyor that lifts the cleaned grain from the hopper and deposits it into either of the bins.

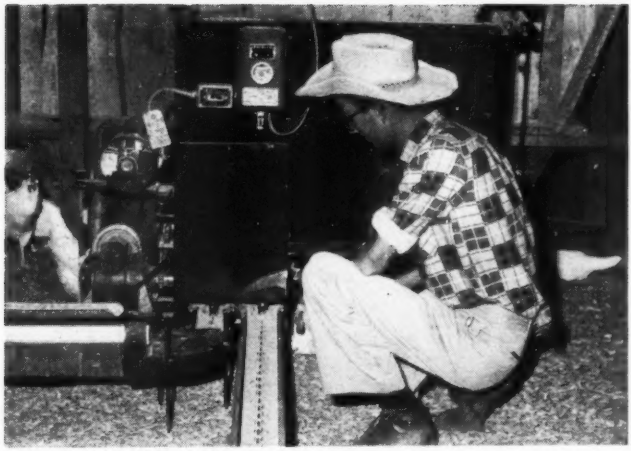
Unheated Air Drying System

The grain is dried and conditioned as necessary with an unheated air system. A 3 hp electric motor drives the centrifugal fan. Twelve-inch ducts connect to each bin.

Besides the bins, the Picklers have eight storage boxes for grain. Each of these boxes has a permanently-installed 6-inch, ½ hp auger. Moving grain from either of the storage areas to scale and hammermill is a push-button operation.

Above left: Storage bins have 25,000-bu. capacity. Grain is moved from hopper (center) to either of bins via permanent conveyor driven by 2 hp motor atop bins.

Left: Automatic waterers and feeders supply hens at all times. Two rows of lamps light the house.



Time-clock-controlled automatic feeders dish out 4 to 5 tons of feed per day. Feed is ground every other day and stored in bulk bins above feeder hoppers.

From the 5 hp mix-mill, feed is moved to bulk storage bins at the poultry houses. Feed flows from the wooden bins into the feed hoppers by gravity.

"We have used automatic feeders since 1950—so long that we have forgotten about hand-feeding," Maurice Pickler says. That indicates how well-satisfied they are with the feeders, which automatically go into action at regular intervals to dish out four to five tons of feed a day.

Houses Well-Lighted

All of the Picklers' laying houses are well-lighted. For example, their 46-foot-wide units are equipped with two rows of lights. A controlled-lighting program has been started to increase egg production. When pullets begin laying, they are started with a 14-hour day. The days are then lengthened 15 minutes per week.

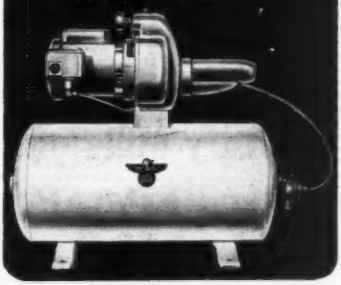
From the laying houses, Springdale Farm eggs are taken directly to a cooling room and cooled to 55°F. This pre-cooling is essential to get a quality egg on the market, according to Maurice Pickler. If eggs are processed and put into cases without being pre-cooled, he says it will take two days in the cooling room to get the temperature inside the case down to 55°.

After pre-cooling, the eggs are washed mechanically with water that has been electrically heated to 130°F. Processing is totally electrified. As eggs move along the conveyor track, they are dried by forced hot air. Then they are candled, automatically graded, and cartoned for market. □ □

Grain is dried and conditioned by unheated air system. Fan is driven by a 3 hp electric motor.

You ALWAYS have Plenty of Water Plenty of Pressure for Modern Living when you install

RED JACKET JET PUMP



With a Red Jacket Jet Pump on your farm you can be sure of plenty of water and pressure at every faucet and hydrant. And in the home, where so many families are installing such wife-saving appliances as automatic washers and dishwashers in addition to regular home water needs, there is plenty of water and plenty of pressure to keep all plumbing working right.

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For complete information contact your local pump dealer.

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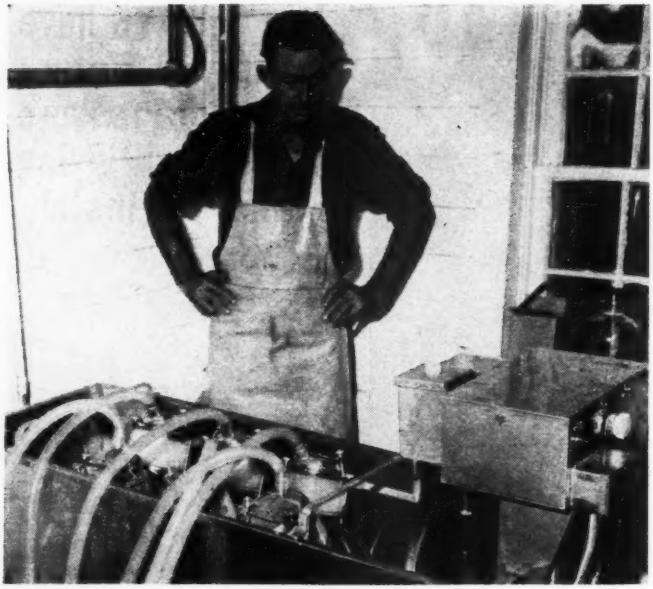

Stand and watch, as Ollie Talley is doing, or do other chores, with a pipeline washer. Once milking units are attached, detergent and sanitizer are in cups, and machine is started, it does the entire washing without any more human help.

Sanitary Milkhouse Needs Water Heater, Pipeline Washer

Stay long on hot water, short on bacteria counts with electric units

Plenty of hot water makes clean-up time in the dairy a lot easier and aids in sanitation, too. With modern milking parlors, pipeline milkers and automatic pipeline washers, you just can't get along without it.

Milk Over 100 Holsteins

At Hop Yard Farm near Dogue, Virginia, upwards of 100 Holsteins are milked. Hot water for the dairy has been supplied for years by an 80-gallon electric water heater. Ollie Talley, who looks after the dairy operation for owner L. A. Gravatt, says he doesn't remember ever running short of hot water.

"And I think I would remember it if something like that happened," he adds. "We use hot water so many ways . . . for the automatic pipeline washer . . . for cleaning utensils . . . for hosing down. It's just easier to clean with hot water."

Water Runs Hot Quickly

The electric water heater is in the milkroom, close to the point where most hot water is used. When Talley turns a faucet, the water runs hot quickly. There is a minimum of wasted water and wasted heating. With the electric water heater in the milkroom, its noiseless, clean, fume-free operation can be appreciated all the more.

Washer Really Saves Work

When he mentions ease of cleaning, Talley always comes back to the automatic pipeline washer. "This thing," he explains, "really saves a lot of work. Of course, we must have a dependable supply of hot water for it. When we get through milking, I just attach the milking units to the washer, put some detergent and sanitizer in the cups, and turn the dial. It runs like an automatic clothes washer. I just forget about it and go on with my other work."

The pipeline washer actually turns water on and off, regulates the temperature, and dumps in detergent and sanitizer at the right times. It has three stages—washing, rinsing and sanitizing. The cycle takes about an hour and keeps the pipelines spotlessly clean and sanitary. □ □

Plenty of hot water for Hop Yard dairy is provided by 80-gallon electric water heater. As it is in the milkroom, its noiseless, clean, fume-free operation is appreciated still more.

Lightning protection for buildings can prevent 30% of farm fires due to

Nature's Un-Guided Missile

Government weather records show that, beginning in late March, the United States will be bombarded by a power that makes atomic bombs look like firecrackers. This bombardment is nothing new; it has been going on since the beginning of the world. It is lightning.

Man has always feared lightning and tried to protect himself from it. He couldn't prevent lightning, but he figured out how to control it. In the latter part of the 18th Century he devised a practical and effective protection—the Lightning Rod.

Lightning Rod Is Complete Protection

Since then, lightning rods and lightning protective measures have been the subjects of many scientific research projects which have verified the fact that, for protection from lightning, there is nothing so effective as the lightning rod. This is still true today. The modern lightning rod system is, for practical purposes, complete protection.

People install lightning rods for various reasons, such as fear of loss of life and property, or to reduce insurance premiums.

At any time during all the years ahead the threat of lightning loss is always present. Authorities estimate that we experience 30 to 50 strokes of lightning per square mile each year in some areas. A building only 50 feet in height has a probability of being struck once every four years. The cost of the lightning rod system only averages about 2% of the building valuation.

In some cases, particularly for the farmer and homeowner, insurance reductions repay a portion of the cost. Some insurance firms offer reductions in premiums for approved Master Label lightning rod systems. Certainly it is justified as far as they are concerned: The national average for suburban and rural lightning—caused fires is 37%.

A modern system of lightning protection consists of low, inconspicuous air terminals or points, connected by means of special cables to a permanent ground rod. In addition, all metal fixtures in the building such as stanchions, conveyors, barn cleaners, door tracks, TV antennae and ventilators must all be connected to the lightning protection system. This establishes a common ground for all metal masses within or on the building. It prevents side flashes which could cause damage or destruction to the building.

UL Sets Standards

Much research has gone into the development of proper materials and methods to be used. Underwriters' Laboratories and the National Fire Code have set up standards as a guide to proper installations. They are specific and exacting. Underwriters' Laboratories provides a special certification label. It is called the Underwriters' Laboratories Master Label, and signifies that an installation conforms in both materials and workmanship to the established standards.

To obtain the label a special report form must be filled out. The buyer signs the form verifying the depth of grounds installed, which must never be less than 10 feet below grade. The report, signed by the owner, is then countersigned by the installer and mailed to the manufacturer of the equipment. He verifies the quality of materials supplied and files the report with the office of the Underwriters' Laboratories in Chicago for issuance of the Master Label.

Underwriters' Laboratories also makes spot field checks of installers' work every year to make certain they are not deviating from proper practices.

These requirements are the assurance to the buyer that he is getting 100% protection. He should always insist on the *Underwriters' Laboratories Master Label* when he has lightning protection installed. □ □

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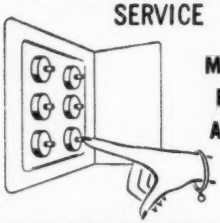

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The Columbiana Pump Co.
RAILROAD STREET
COLUMBIANA, OHIO

Electric grids at windows of Schneiders' barn pile up dead flies beneath them. That's Joe Schneider at left with daughter Kathy and Mrs. Schneider.

Fly and Insect Problem?

Electrocutor Knocks 'Em Dead

Replace smelly, dangerous sprays with clean, efficient electric units

By MARVIN E. STICKROD

Controlling flies and other insects around the farm has always been a problem to the dairyman. Mr. and Mrs. Joe Schneider, operators of the Blue Grass Dairy, Ft. Madison, Iowa, licked this problem nearly 20 years ago.

Flies Fly To Destruction

In 1939 the Schneiders installed 24 electric insect grids in the windows of their 44-cow stanchion barn. When the cows are in the barn, doors are closed and flies go to the windows to get air, where they are destroyed by the electric grids.

Schneider says these grids have been in constant use since 1939, except for about two years after DDT was developed. After the flies had developed an immunity to DDT he started using the grids again.

Dairy Insect Control A Must

Insect control aids in cleanliness on a dairy farm. That's an important item to the Schneiders, since they pasteurize and bottle the milk on the farm. Much of their milk is sold at the farm to regular customers, and they have one milk route in Ft. Madison.

The Schneiders are a busy family with a large poultry operation, dairy enterprise and small sales office at the farm. Electric equipment in use on the farm is a big factor in getting all the jobs done.

RESEARCH NOTES

By J. P. SCHAENZER

Total crop production for 1958 was 10% above 1957, even though it was grown on the fewest acres in 40 years—USDA

A control that is responsive to radiant heat and automatically turns infrared brooders on to meet chick needs has been developed—USDA at Purdue

Hatchability is not impaired when dirty chicken or turkey eggs are washed or dry-cleaned properly—Mich. State Univ.

Barn cleaners for 40 dairy cows and calves used an average of 2.4 to 3.4 KWHrs when used twice daily with sawdust, shavings or chopped straw bedding —Pennsylvania State University

The optimum temperature zone for highest milk production for all dairy cattle is about 30° to 75° F., according to recent tests—Missouri

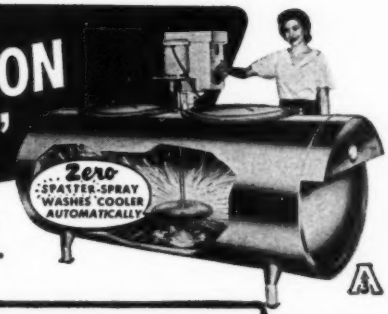
Turkeys fed 8% lard which was cooked to a rich, even brown, were high in flavor, tender and juicy—USDA

A broad, moving, wire-mesh, trough-shaped belt has been found useful for drying fruits and vegetables—USDA Western Utilization Division, Calif.

Pigs weaned at two weeks did poorly when placed in a drafty building at temperatures of 32° to 50° F.—Univ. of Ill.

Dutch iris flowers from 30-day packaged storage held up well for four or more days at room temperatures when storage was followed by conditioning in a 45° F. room where flowers were kept in 105° water for two days.—J. M. Jenkins, Jr., North Carolina Horticulturalist.

"ZERO AUTOMATION PAYS OFF!" —SAYS JEROME COPLEY of Wellsboro, Pa.



"I CHOSE A ZERO FOR ITS AUTOMATIC WASHING AND MANY OTHER FEATURES"

"I believe the future for a dairyman is very bright. I chose a ZERO bulk milk cooler for these reasons: First, a vacuum tank for its many advantages. Automatic Washing, suction to draw milk into the tank. Its strength, economy and minimum space required. ZERO is surely the tank of and for the future. I recommend it to any dairyman." — Jerome Copley; Welisboro, Pa.

FREE BOOK! Tells how to make more money with milk. Gives full information about ZERO T-20 BULK MILK COOLERS. Includes dimensions and sizes of different size ZERO Coolers. Shows how easy it is to slide and fit the round ZERO into your milk house. Write now!

Write for full information and name of nearest ZERO dealer!
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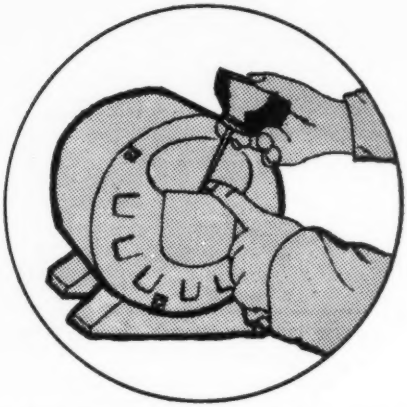

How to Clean and Oil Electric Motors

Your motor will serve you only as well as you care for it

Your electric motors, like any other pieces of machinery, perform only as well as their condition will allow. And, as with humans, a little preventive medicine *before* trouble occurs is worth a lot more than any cure.

Preventive maintenance includes blowing the motor out with compressed air every three months, as well as cleaning, checking the installation, observing the load on the motor, and lubrication.

Any kind of dirt—dust, lint, straw, chaff, etc.—either clinging to the inside or outside of the motor, can cause it to overheat and burn out. Therefore, the main consideration in motor maintenance is to keep it clean, using the method at left.

Lubrication is another important part of motor maintenance. Either too much or too little lubrication can do your motor harm. Over-lubrication usually means oil-soaked, gummy windings, which soon fail. Too little lubrication means worn out bearings. For best lubrication results, oil the motor according to manufacturer's recommendations. Use SAE 20 motor oil for motors 1/6 hp and up. Wipe off excess oil with cloth.

Sleeve bearings, which are most common in fractional horsepower motors, are oiled from a wick in the oil chamber. Five drops of light oil in the chamber every three months will usually keep the bearings lubricated.

Ball bearings are always sealed, and need no special attention unless the motor is taken apart for major repair.

Probably the best method for keeping track of motor lubrication is to keep a lubrication tag attached to the motor, similar to that pasted on cars. This would give date of last oiling and lubrication instructions. □ □

PROCEDURE FOR CLEANING ELECTRIC MOTOR*

1. Disconnect motor and remove from mounting.
2. Wipe all dirt from outer surface of motor.
3. Disconnect wires at motor, noting position on motor terminals.
4. Remove motor pulley—use gear puller or pair of "C" clamps.
5. Mark end bells with center punch—one mark on pulley end bell and two marks on opposite end bell; mark housing same way.
6. Use proper tools (box or socket wrench and screwdriver) to remove the bolts holding end bells.
7. Use a *soft-faced* (plastic, wood or lead) hammer and screwdriver to tap end bells loose.
8. First remove the end that does not contain the starting switch or brush ring—observe the position and number of shims as you remove the rotor.
9. Carefully remove the end containing the starting switch, as it is attached to stator by permanent wires.
10. Use very fine sandpaper or crocus cloth to clean points (also commutator, brushes in repulsion motor). *Do not use emery cloth.*
11. Clean all parts of the motor—*do not use gasoline*—use special cleaning fluid or carbon tetrachloride and *do not get liquid on wires.* Blow parts clean with air and wipe off any remaining dirt.
12. Make sure bearings are clean and wicking is in place.
13. Re-assemble in following order:
    a. End with switch or brushing—pack wires in place so as not to become caught in rotor.
    b. Insert rotor—make sure shims are in place—a drop of oil should be placed on bearing part of the shaft.
    c. Replace other end bell.
14. Check position of end bells with center punch marks—oil well should be up and window in bearing not in line of pull.
15. Insert end bell bolts—use soft face hammer to tap end bells into position—use proper wrench to tighten bolts.
16. Turn shaft by hand—if it is tight, end bells may not be in proper alignment or the wicking may be between bearing and shaft. *Shaft must turn freely before energizing motor.*
17. Connect temporary leads and test motor. Then fasten permanent wire leads securely.

Caution

a. If you don't have a soft-faced hammer—use a block of wood and ball peen hammer. Do not force any part!
b. In case of ball bearing motors, press end bells into position or tap lightly with soft hammer.

**Courtesy Agric. Engr. Dept., Ohio State Univ.*

Customer has choice of large or medium eggs. Vendor is refilled daily.

Silent Salesman Never Sleeps

Do you remember the first time you dropped a coin "in the slot" to get a gum ball, handful of peanuts, or bottle of pop? Every one of us at some time or other has probably bought from a "silent salesman" —the vending machine.

Now poultrymen are using these "silent salesmen" to help them sell their eggs. Typical is the Conrad Poultry Farm near Port Huron, Michigan. They have their egg vending machine set up along Highway 21. Day or night, around the clock, customers can stop, drop some coins in the slot, pick up their carton of fresh graded eggs, and be on their way. And no one has to wait on them.

The Conrad's vendor is designed to maintain perfect storage conditions for the eggs, regardless of outside weather. A refrigeration unit keeps a 55° temperature inside with high humidity such as eggs need. If it turns cold, a heating element prevents inside temperatures from falling too low.

The Conrad's provided adequate roadside parking for the safety and convenience of stopping motorists. All-night lighting illuminates both machine and parking area, making it inviting for the motorist to stop.

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No need for you to spend hours a day drawing water the hard way. Myers OLYMPIAN pumps do the job easier . . . . better. You get more water per dollar than with any other jet pump. Twelve great models to give you a pump tailored for your farm and budget. See the All-New OLYMPIAN pump today at your authorized Myers pump dealer.

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ELIMINATE IRON AND SULPHUR!
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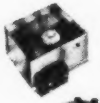

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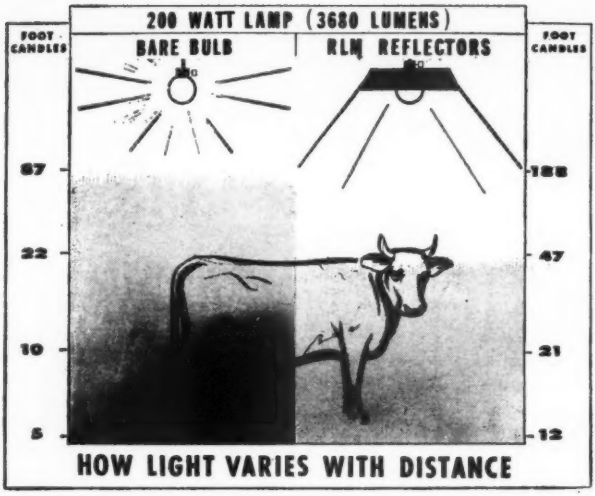


California studies show that

Most Dairies Don't Have Enough Light

By B. D. JOHNSON

Today's dairyman is investing large amounts of capital to mechanize. He points with pride to his fast pipeline milking system, automatic feeders, etc. But his lighting system hasn't changed in 20 years.

Good lighting has many advantages. It allows the job to be done more quickly, safely and conveniently.

To gain first-hand knowledge on this subject, Pacific Gas & Electric Company conducted 40 dairy lighting studies during 1958. They were mainly interested in learning how to get good lighting for the milking process from milking parlor to milkroom.

From a review of the available literature and discussion with dairy authorities, it appeared that a minimum of 20 foot-candles of light at the level of the cow's udder would be most desirable.

Forty dairies, all producers of Grade-A milk, were visited during the study. The average size dairy was about 100 cows.

Most of the dairies fell into one of two classes—the elevated tandem or the stanchioned floor-level type (face-out, face-in, walk-through).

The average udder lighting was very low in both, as compared with the desired 20 ft-c.

Based on the lighting studies, the following suggestions are offered for better dairy lighting.

Dairy Lighting Study Results

	Milking Room Types	
	Average Elevated Tandem	*Average Stanchion Type*
No. Installations	17	28
Lighting, Watts/Cow	5.8	6.3
Udder Lighting	6.8 ft-c*	1.6 ft-c
Cattle Walk	2.0 ft-c	1.3 ft-c
Operator's Alley	7.0 ft-c	3.6 ft-c

**ft-c represents foot candles of light at area listed*

Basic Lighting Principles

A good lighting job requires scientific planning. Lighting can often be improved by using basic information. Most dairy lighting needs direct illumination, with all light shining directly on the task rather than reflected from ceilings or walls. The reflective value of interior barn surfaces is only 10 to 30%. Most light striking these surfaces is absorbed and lost.

Fluorescent or incandescent fixtures can be used. Initial cost of fluorescent fixtures is higher than for incandescent. But fluorescent lighting has advantages of long life, high efficiency, low operating cost, and good overall light distribution. Incandescent light fixtures should be located so as to eliminate harsh shadows and give good coverage. Reflectors should be used.

Lamps should be placed to minimize shadows. Several light sources are usually better than one large lamp. Good lighting must minimize glare.

Candlepower (the amount of light at the lamp) is same as it's foot-candles if measured one-foot from the lamp. Since light intensity on an object (ft-c) depends upon the distance the object is from the light source, the location of lighting fixtures is very important. This formula shows this relationship:

Foot-candles (ft-c) = Candlepower/Distance Squared

Elevated tandem-type dairy, in which cows stand in parallel rows on a 2 to 3 ft. elevated platform:

1. Incandescent lighting. A 100-watt lamp with reflector or 150-watt R-40 flood for each milking stall, mounted 8 to 9 feet above operator's alley, 2 to 3 feet aside from the cow. A 75-watt PAR-38 flood lamp should also be mounted on the concrete lip of cow stall, aimed at udder.

2. Fluorescent lighting. A continuous row of two-lamp standard white fixtures (rated 200 watts per 8-ft. section) running parallel to each string of cows being milked. Mount units 9 feet above operator's floor, and about 2 to 3 feet aside from the cow, over operator's (center) alley.

Stanchion or level floor dairy.

1. Fluorescent lighting. Install continuous rows of two-lamp industrial-type standard white fixtures approximately 3 feet inside the center alley. Mounting height should be from 8 to 9 feet above floor. Also, rows of 100-watt incandescent lamps with shallow dome reflectors, using 12-ft. spacing, should go over mangers.

2. Incandescent lighting. A row of 200-watt lamps, using reflectors, placed about 3 feet behind each row of cows for good general lighting of about 20 ft-c at udder level. These lamps should be located at intervals of not more than 6 feet, with a mounting height of 8 to 9 feet to minimize glare and shadows. Rows of 100-watt lamps with reflectors should be placed over mangers.

It is quite safe to say that increasing wattages alone will not make a good lighting job—engineering is essential. □ □

Light meters are a must for accurate determination of light intensities at work areas.

Gilbert Pehlke operates the Frank O. Jones farm near Viola, Wisconsin. His main business is dairying. He milks around 72 head at all times. Several years ago, two Clay Crop Driers were put into use on this farm. Read and see if Mr. Pehlke's experience might prove valuable to you.

Will this man's experience help you raise your farm income?

Here, in his own words, are the results that Gilbert Pehlke of Viola, Wisc. got from his CLAY CROP DRYING SYSTEM.

"We dried 500 tons of hay with our CLAY CROP DRIERS. It cost about 90¢ per ton to dry. We were able to cut our protein requirements from 8 lbs. of 16% protein per animal per day to 4 lbs. of 14% protein per animal.

"This saved us $186.62 per month on the protein bill for our 72 cow herd. Multiply this by the 6 months that the cows aren't on pasture, and you get a saving of $1,119.72. From this, subtract our drying costs of $450, and it leaves a net saving of $669.72.

"Our cows actually produced more milk on the mow-cured hay than on pasture. In 1956, we bought some top quality field-cured hay when we ran low on mow-cured hay. In 2 weeks, production was down 400 lbs. a day. I know we paid for our CLAY CROP DRYING SYSTEM in less than 6 months."

This is one story from one CLAY CROP DRIER user. Others report larger savings . . . some report smaller. Learn just how much a CLAY CROP DRIER can save you. Write to CLAY *today*. Ask for new Crop Drying Booklet. And be sure to ask about CLAY's Purchase Plan. Learn how you can pay for your Drier out of the money it saves you.

CLAY EQUIPMENT CORPORATION • 494 Pearl Street • Cedar Falls, Iowa

Eighty year old frame home of Mr. and Mrs. Robert which now uses electric heating for comfort and convenience.

"We're Sold on Electric Heat"

By JOE COLLINS

The conversion of our existing home, which is about 80 years old, to electric heat is very satisfactory. We find it to be very practical, and it is so clean, quiet and comfortable." So say Mr. & Mrs. R. J. Robert of Princeton, W. Va.

"We had no problems in converting to our electric baseboard heat. It was so simple and quick to install. There was no need to 'tear up' the house."

Mrs. Robert explains, "We used to heat our home with a big coal burning heatrola in here and a couple more in other rooms. We had plenty of coal and ashes to handle. And the dirt and dust were terrible on drapes and windows. Our electric heat really is clean and so convenient. Just turn the thermostat up, that's all there is to it. It's always ready. I think it is just grand."

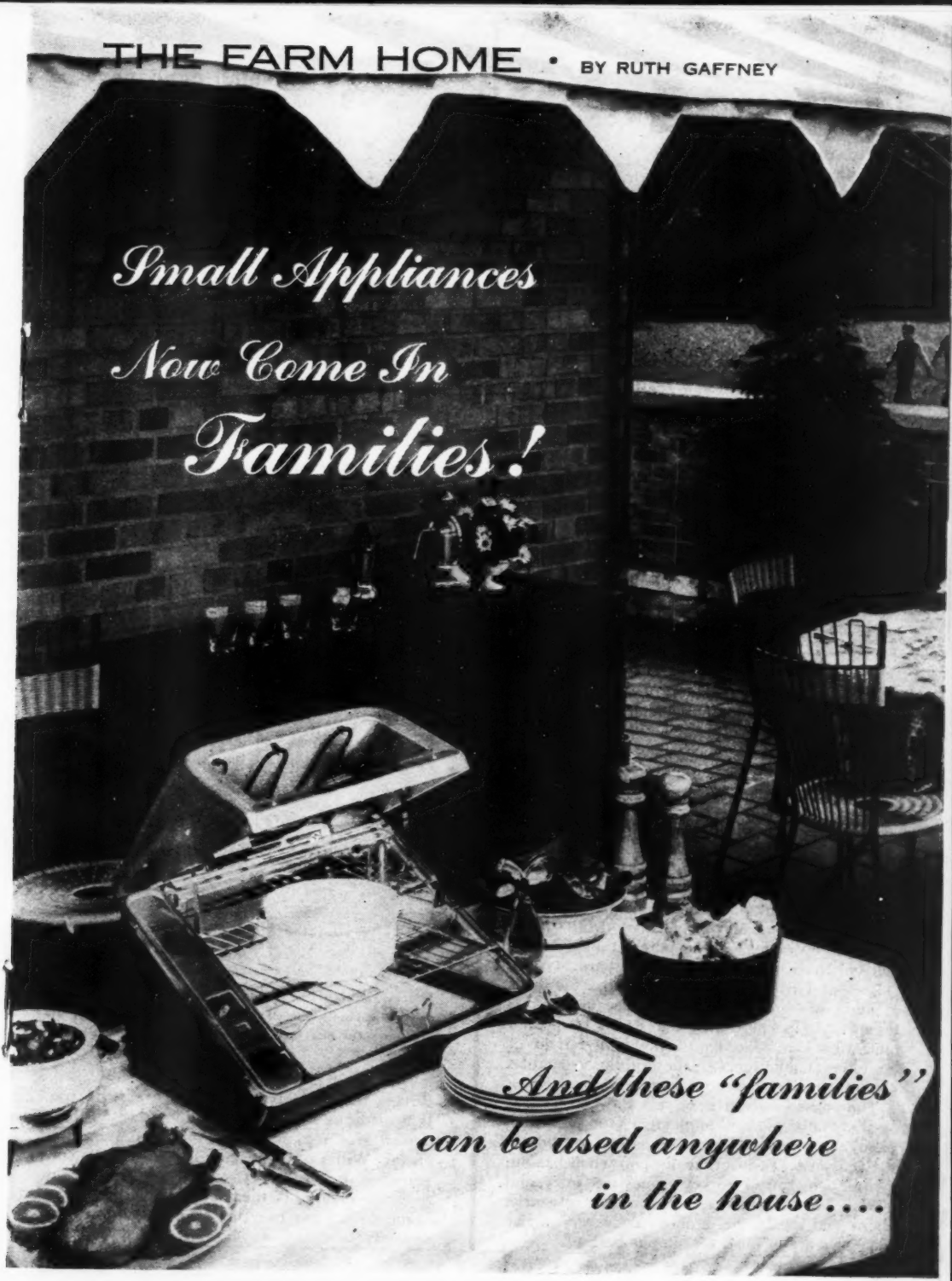
In concluding his thoughts about electric heat, Mr. Robert explains it all as he says, "I'm sorry we didn't have someone come and tell us about it sooner. It's such even heat. It's just everywhere at once." □ □

Mr. and Mrs. Robert are strong boosters of electrical equipment. During the visit, which included a cup of delicious coffee, she told about 22 electrically operated appliances in their home. Mr. Robert boasts of 14 more in his dairy barn and shop.

DUFFY'S CAVERN

EVERSTOPTOTHINK? — For EVERY person who BRAGS about being bright, there are a DOZEN ready to polish him off. . . . . SODDEN THOUGHT: NOTHING annoys a woman SO much as having her friends drop in to find her house looking like it USUALLY does. . . . . NEATNESS: the ONE good thing about being bald. . . . . If you'd believe the toilet soap ads, love is a skin affection. . . . . A doctor friend of ours, one of the pillars of our community, sent us this lil gem. Sez Doc, "INFLATION is a national headache caused by asset indigestion." . . . . Gal, returning pair of shoes to exclusive shop: "They won't do. I simply CAN'T walk in them." Clerk: "Madam, persons who HAVE to walk DON'T shop in this store." . . . . SHORTEST SHORT STORY: CAR, CARESS, CARELESS, CARLESS. . . . . SHAGGY DAWG STORY: The one about the ditch digger who complained to the boss, "Do you think I'll ever get ALL this dirt back into the hole?" Came the disgusted reply from the boss, "No, I DON'T think you've dug the hole DEEP enough!" . . . . MUCH happiness is OVERLOOKED simply because it doesn't cost anything. . . . . "Father," queried the son, "why do men become silent after they marry?" "Well, Son," replied his father, "THAT'S because there are only SO many words allotted to EACH family, and the women use MORE than their share." . . . . SNICKERSNORT-OF-THE-MONTH: "How long have you been married?" "I've been in holy headlock for fifteen years." "You mean holy wedlock, don't you?" "No, my wife's a WRESTLER." . . . . SUCCESSFUL MAN: one who earns more than his wife spends. . . . . GRAND CANYON: the hole of fame. . . . . Our definition of disillusionment is finding a corn pad when drinking champagne from a slipper. (D. O. Flynn in QUOTE). . . . . SUDDEN SODDEN THOUGHT: When the true character of some people crops out it's a crop failure. . . . . JINGLEJOLLY DEPT.: Johnny Bee was a lazy little bee, So he lost out in his sector. But Jimmy Bee was a busy little bee— He found his honey and nectar. . . . .

Your pun-peddler—DUFFY


Small Appliances
Now Come In
Families!
And these "families"
can be used anywhere
in the house....

Small Appliances

First of all, we have a *family* of small appliances we use for breakfast:

toaster
griddle
waffle iron
coffee maker
electric skillet
fruit juicer
coffee grinder
egg cooker

We also have a *family* to prepare our dinner or supper:

rotisserie-oven
electric griddle
saucepan
Dutch oven
coffee maker
deep fat fryer
electric skillet
ice cream freezer

And then we have a *family* that "serves" us:

standard mixer
hand mixer
blender
can opener
knife sharpener
meat grinder
bottle warmer

You will notice immediately that a number of the same appliances are members of different "families." This versatility is important and can be enlarged. For instance, how often do you use the waffle iron for suppertime main dish or for making a dessert? Controlled heat of an electric saucepan is ideal for old-fashioned breakfast oatmeal and other slow-cooking foods.

Cooking around the house is another advantage in using small appliances. Why not set a table in the living room if there's a particularly important TV program the whole family wants to see? The company you've invited for supper would enjoy eating on the porch, taking in the glory of fresh spring flowers in the yard.

Last—and by no means least—if the family is a bunch of mealtime stragglers because of different outside chores, isn't it easier to plan a meal that can be cooked individually, right at the table (hamburgers on the griddle, vegetables kept warm in the electric saucepan)?

The rotisserie-oven is one of the newest and most versatile of small appliances (see preceding page). Just push a button to bake, broil or use the rotisserie. Popovers really pop when baking; a duck, chicken or turkey comes out juicy and golden brown when cooked on the rotisserie; chops and steaks are broiled the way you like them when you push the broiler button.

Where to store small appliances:

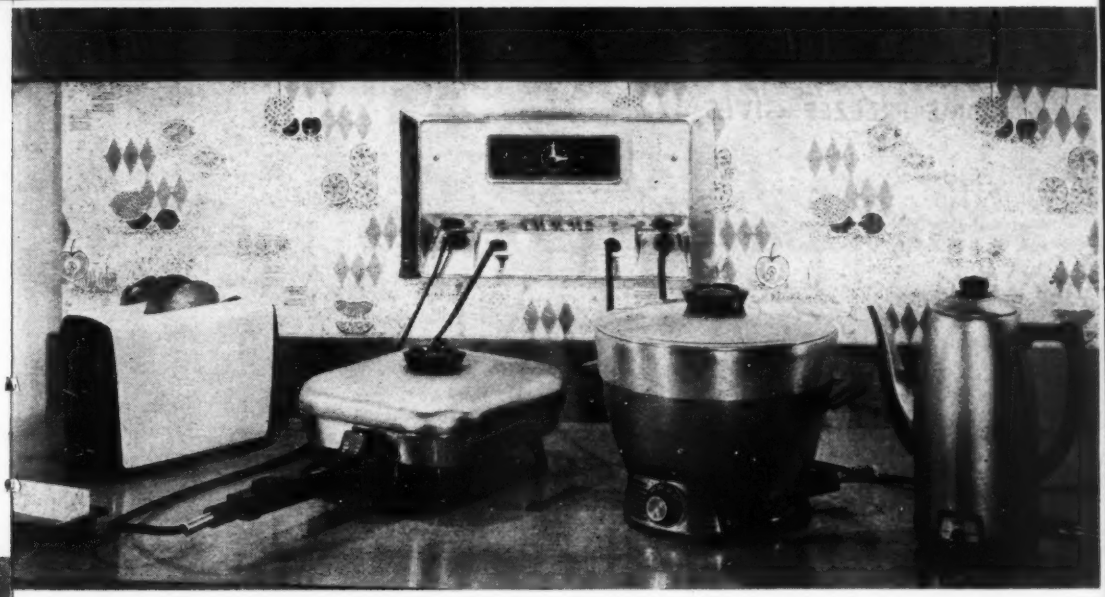
It can be said that a small appliance is just as useful as the place it's stored. You know what we mean if you have—unused for weeks or months—a roaster or mixer occupying some inconvenient space on a high shelf in your kitchen.

In order to get full use out of an appliance, such as a mixer, store as near as possible to place it will be needed most. Appliances used at the table (toaster, waffle iron) can be stored in breakfast or dining area.

The problem of storage often may guide you in deciding whether to buy a given appliance. Avoid the mistake of buying a "gadgety," or one-use, appliance which takes up valuable and much-needed space. Later on, it could keep you from buying a labor-saver you really needed and wanted because you did not have the room for it.

Special cabinet is designed for storing small appliances; automatic control panel lets you use up to six appliances at one time. For new or remodeled kitchens.

Buying thoughts: Is the appliance easy to use? Is it made by a reliable manufacturer? Will the dealer give me proper service? Is it easy to clean? Will I use it often? Do I need the convenience it offers? And the most important question of all: Is there enough wiring in my home to let me use this appliance to its full capacity?



Newest way to have plenty of current when using your small appliances. This appliance center on the wall is connected to a 240-volt power source and provides four 120-volt outlets; does away with problem of blowing fuses on overloaded circuits. Clocktimer gives fully automatic cooking, just like the one you have on your electric range.

Breakfast for Giant Appetites

Fresh orange juice

Boiled eggs **Country bacon**

Apple-Cinnamon Pancakes

Golden toast **Coffee**

YOU'LL USE: coffee grinder, coffee maker, juicer, egg cooker, electric skillet, food blender, electric griddle, automatic toaster.

First: grind coffee; measure water into coffee maker; turn on. Coffee maker works automatically, keeps coffee at serving temperature for hours.

Second: squeeze orange juice.

Third: put 1 to 6 eggs in egg cooker; set control at degree of doneness you want—soft, medium or hard. Cooker shuts off automatically.

Fourth: cook bacon in electric skillet. Controlled heat prevents burning, cooks evenly.

Fifth: make apple-cinnamon pancakes. Follow directions on package of your favorite wheat pancake mix, adding liquid first to electric blender. Add 1½ tart, peeled apples, cut in quarters and ½ teaspoon cinnamon for each cup of mix; add eggs, shortening; blend 45 seconds or until apple is well blended. Cook on electric griddle.

Sixth: put thin-sliced bread in automatic toaster.

Wattage requirements . . . how many can you use with your present wiring?

Broiler-rotisserie	1320-1650	Electric roaster	1650	Mixer	100
Coffee maker	440-1000	Food blender	230-250	Electric saucepan	1000
Coffee grinder	150	Electric griddle	1350	Skillet	1100
Deep fat fryer	1350	Ice cream freezer	115	Toaster (automatic)	up to 1150
Egg cooker	500	Knife sharpener	103	Waffle iron	up to 1100

A HOME FREEZER GIVES

Economy and Convenience . . .

Garden-fresh foods from Mrs. Hugh Simpson's 20-cu. ft. freezer in her kitchen are close at hand all year.

By JULIA BULLOCK

Some people say we Southerners are inclined to take for granted 'charming' 'lovely' 'old world' as a description of our way of life. By the same token some say we like to take things easy and are somewhat indifferent to thrift.

Not so—the "Yankee thrift" cliche can be applied aptly to many a Southern farm family. Take, for instance, the family of Mr. and Mrs. Hugh Simpson of Mobile County, Alabama.

Their 40-acre farm is located near the Fowl River and is about twenty miles from Mobile on the Bay. This is an area noted for its fine farms, pecan orchards and, in years past, for mandarin orange orchards. Could you find a better setting in which to take life easy!

What better way to cook chicken than on a rotisserie! The Simpson family likes their fresh-grown quality and availability at any time of the year.

When the Simpsons remodeled their house of uncertain vintage by means of their own hard work, they wisely included a modern kitchen for practical convenience and efficiency. Cabinets are of natural finish knotty pine. New and up-to-date wiring allows them to use an electric range, refrigerator, dishwasher, automatic washer and numerous small appliances. The kitchen is large enough to accommodate a 20-cubic-foot freezer—and here's where the thrift comes in.

From this large freezer Mrs. Simpson gives her family appealing, nutritious meals with a minimum of effort. When she goes into Mobile she buys bread and other foods and stores them in the freezer to be used as needed. This not only insures freshness but saves time in shopping trips, too.

Last summer she prepared and froze over six hundred pounds of vegetables and fruits from their farm. Fish, shrimp and crabs from the local waters are caught during the summer and put in the freezer. How's that for economy?

That's not all. Mr. Simpson raises Hereford cattle and always earmarks a choice calf for family use. Right now there's one almost ready; when butchered it will dress out at about 350 pounds.

New Hampshire Reds raised by Mrs. Simpson furnish plenty of dressed fryers and hens; surplus eggs are slightly beaten, frozen in ice trays, then wrapped for storage. From a large supply of fresh milk comes sweet butter, cream and cottage cheese. Turkeys for Thanksgiving and Christmas are bought when the price is low, then frozen for later use.

Mrs. Simpson says she never serves leftovers but packages them, and puts them in the freezer and uses them in planning future meals. She cooks a quantity of baked beans—a family favorite—and stores them in casseroles for a quick meal; fruit cake, cookies, and pies are always on hand. These are all thrifty in that precious item we can't retrieve—time!

This truly bounteous feast is earned by hard work from their own land. But it's their freezer that makes it possible to retain the fresh-grown quality. The Simpsons and their two young daughters are to be congratulated for their wise planning. □ □

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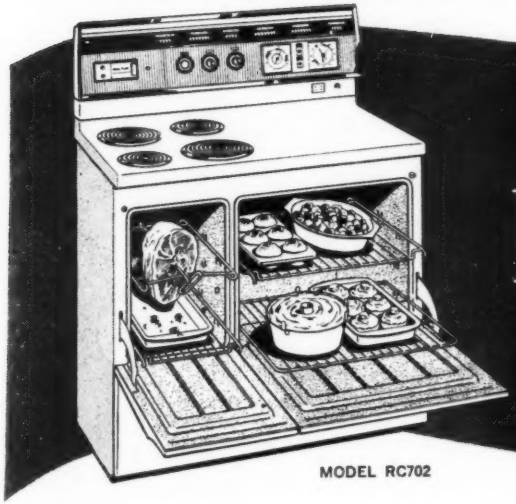

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Start enjoying the cooking luxury of Recipe Heat. See your Hotpoint dealer today.

LOOK FOR THAT HOTPOINT DIFFERENCE

Hotpoint

A Division of General Electric Company, Chicago 44, Illinois

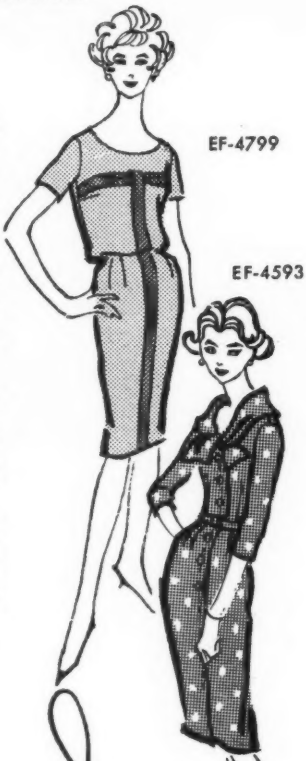
Dress for Spring

EF-4885 Look pretty this spring in a full-skirted dress with dress-up neckline and fitted bodice. Bow ties in front giving a young draped line and emphasizing tiny waist. Misses' and junior sizes 9-15, 10-16. Misses' size 14 requires 5½ yards 35-inch fabric. **50¢ (60¢ in Canada).**

EF-4799 Soft as a spring breeze is this gently-fitting dress with bloused top. Bands cross in front and continue down the slim skirt. Women's and misses sizes 12-20, 40-42. Misses' size 16 requires 3⅛ yards 35-inch fabric. **50¢ (60¢ in Canada).**

EF-4945 Charming outfit for little sister has shawl-collared double-breasted jacket over simple sleeveless dress with full 3-gored skirt. Dress has little belt in back. Children's sizes 1-6. Size 6 requires 3 yards 35-inch fabric. **50¢ (60¢ in Canada).**

EF-4927 An ideal graduation dress. Wide midriff with front-scooped neck and full box-pleated skirt. Tiny pearl buttons trim band in front. Misses' and junior sizes 11-15, 10-18. Misses' size 14 requires 4⅞ yards 35-inch fabric. **50¢ (60¢ in Canada).**



EF-4593 Half-size flattery in a softly styled dress that buttons down front. Kerchief collar ties in soft folds. Becoming panel-back skirt. Half-sizes 12½-22½. Half-size 14½ requires 3⅝ yards of 42-inch fabric. **50¢ (60¢ in Canada).**

EF-3504 For summer festivities make this easy-skirted dress with lightly pleated neckline and surplice closing. Unpressed pleats shape skirt front, panel back. Women's and misses' half-size dress, 12½-22½. Half-size 14½ requires 3¼ yards 45-inch fabric. **65¢ (75¢ in Canada).**

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P. O. Box 986, Dayton, Ohio
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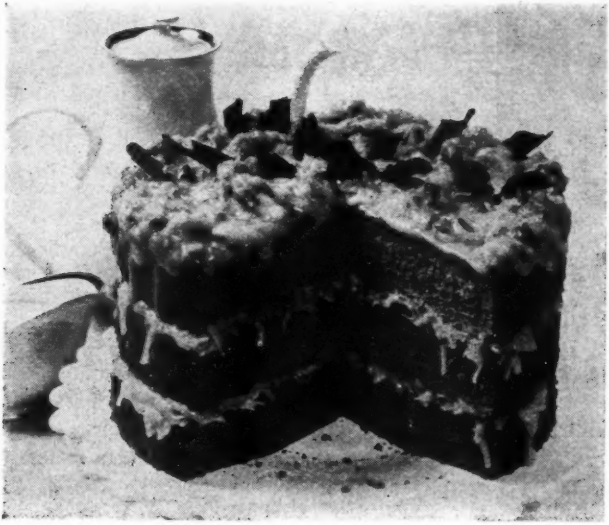


A specialty to please the men!

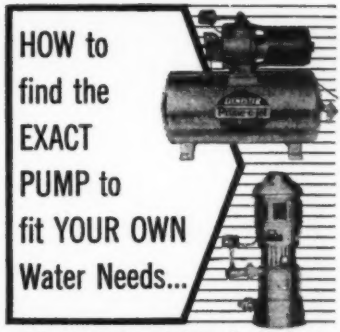
German's Chocolate Cake

1 package sweet cooking chocolate
½ cup boiling water
1 cup butter, or other shortening
2 cups sugar
4 egg yolks, unbeaten
1 teaspoon vanilla
2½ cups sifted cake flour
1 teaspoon baking soda
½ teaspoon salt
1 cup buttermilk
4 egg whites, stiffly beaten

Melt chocolate in ½ cup boiling water. Cool. Cream butter and sugar until light, fluffy. Add egg yolks, one at a time, beating after each. Add vanilla, melted chocolate, mix until blended. Sift flour, soda and salt. Add sifted dry ingredients alternately with buttermilk, beating until batter is smooth. Fold in stiffly beaten egg whites. Pour into three 8 or 9-inch layer pans or two 9 x 9 x 2-inch pans, which have been lined on bottoms with paper. Bake (350°F.) 35 to 40 minutes for round layers, 40 to 45 minutes for square pans. Cool, then frost.

Coffee Whipped Cream: *combine 2 cups whipping cream, ¼ cup sugar, 4 teaspoons instant coffee, 1 teaspoon vanilla in chilled bowl; do not overbeat. Garnish with blanched almonds dipped in unsweetened chocolate.*

Coconut-Pecan Frosting: *combine 1 cup evaporated milk, 1 cup sugar, 3 egg yolks, ¼ pound butter and 1 teaspoon vanilla in a saucepan. Cook over medium heat 12 minutes, stirring constantly, until mixture thickens. Remove from heat. Add about 1⅓ cups thin-flaked coconut and 1 cup chopped pecans. Beat until cool and of spreading consistency.*



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Beatrice, Nebraska

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Green Guard Protective Capacitor is the only such device approved by both REA and Underwriters Laboratories, Inc. Holds lightning surges to *less* than line voltage, protects heaters, lamps, motors, etc. Send for full story. Security Mfg. & Contracting Co., Burlington 21, Wis.

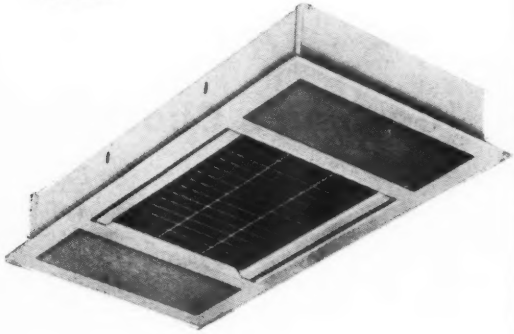
SECURITY
LIGHTNING PROTECTION IN THE MODERN MANNER

BATHROOM

Heaters . . .

CHILLY SPRING MORNINGS, when the house heating has been turned off, wouldn't it be nice to have an electric heater in the bathroom?

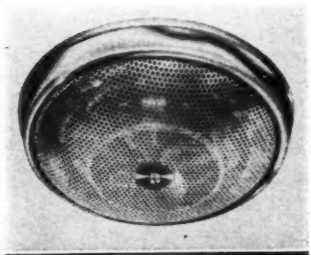
You will find many types from which to choose. They are not too costly and are easy to install. Many types not only furnish heat and illumination, but also have an exhaust fan to remove moisture and stale air. Electric heaters built into the wall have thermostats to insure an even temperature—no sudden unpleasant changes from too cold to too hot.

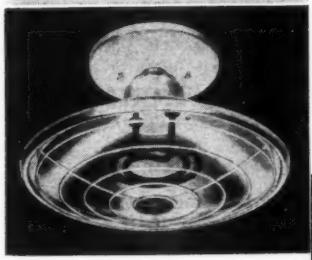


Recessed ceiling unit, *above,* combines electric radiant heating with built-in lighting. A fan gently circulates air to all parts of the room. Overall size approximately 14″ x 27″. Furnishes 1,000 watts of heating with wall-mounted thermostat; lights controlled by separate wall switch.

Left, mother and daughter are enjoying warmth from another ceiling-type electric heater. Three infra-red lamps provide instant penetrating heat by direct light-type rays. Just a flick of a switch and you are bathed in pleasant warmth—even in a cold bathroom!

Below, *new, draft-free ceiling mounted bathroom heater has small built-in fan. Snug installation—neoprene gasket on rim conforms to any surface irregularities. Diameter about 14-inches.*



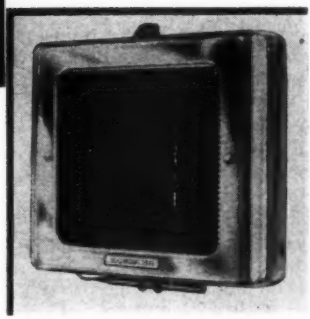


Above, *ceiling heater low in cost and easy to install. Surface mounted to any standard 3" or 4" junction box, extends only about 9" from ceiling. Safely out of reach, operates by switch on wall.*

Wall-type bathroom heaters, like one shown below, *are both safe and efficient. This one has extra safety feature of a completely sealed heating element. No ducts, flues or piping needed. Thermostatically controlled, it has a range of temperatures from 55° to 85° F. Built-in fan circulates air. Handy for use in quick drying damp towels.*

Comes in sizes to furnish from 1300 to 1500 watts of heat. Outside dimensions approximately 12" square; extends 2" from wall.

An efficient bathroom heater is economical to use because heat is produced right where you need it. No need to overheat rest of house just to have comfort in this area.



Remember:

- **Safety** is first consideration in buying an electric bathroom heater.
- **Quality** is built-in economy. It should have Underwriters' approval and a guarantee against defects in materials and workmanship.
- **Efficiency** is determined by how quickly it heats up.
- **Appearance** is also an important consideration. Neat and compact can be a yardstick.

3 ANSWERS to PROBLEM WATER in ONE

DIAMOND 3T UNIT

You can *Filter, Soften* and *Remove Iron* from your water supply with this new and revolutionary Diamond 3T Unit. Completely *automatic*; periodic replenishing of salt is all that is required. Guaranteed by one of the oldest manufacturers of water conditioning equipment. Write

OSHKOSH FILTER & SOFTENER CO.
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DRAINS cellars, cisterns, wash tubs. IRRIGATES - CIRCULATES - SPRAYS 7.95

1,001 uses. Stainless shaft. Won't rust or clog! Use 1/6 HP motor or larger (not 1/8 HP for up to 3000 GPH: 450 GPH 80' high; or 1800 GPH from 25' well. 1" inlet; ¾" outlet. Coupling included free. $7.95

Heavy Duty Ball-Bearing Pump
Up to 7,800 GPH; or 9000 GPH from 25' well. 1¼" inlet; 1" outlet $12.95
Postpaid if cash with order. MONEY BACK GUARANTEE.
LABAWCO PUMPS, Belle Mead 49, New Jersey

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SEPTIC TANK TROUBLE?

NORTHEL Reactivator keeps septic tank and cesspool clean. Bacterial concentrate breaks up solids and grease — prevents overflow, back-up, odors. Regular use saves costly pumping or digging. Simply mix dry powder in water, flush down toilet. Non-poisonous, non-caustic. Guaranteed to reactivate septic tank, cesspool. Six months supply (23 ozs.) only $2.95 postpaid.

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"TWO RANGES IN ONE" — Bake with COAL-WOOD or OIL alone, ELECTRICITY alone, or in combination . . . one oven for any of these fuels.
No guess work . . . set the dial to desired temperature and electricity is automatically added to hold the heat set. Double cooking surfaces. Kitchens are COZY in winter — COOL in summer with America's finest and most beautiful MONARCH combination ranges. See your dealer today.

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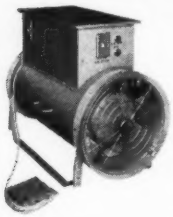
FARM FANS & GRAIN CONDITIONER



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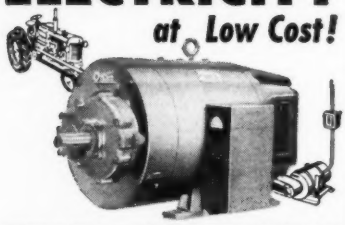

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JUNIOR PARTNERS

Natural finish kitchen cabinets were built for a neighbor by Robert Means.

He Earns While He Learns

By A. G. SHEPHERD*

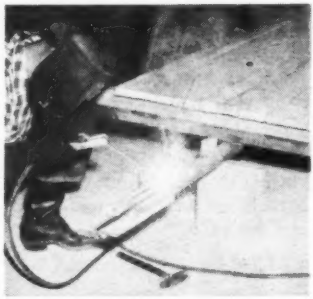
By putting his Vo-Ag training to good use, Robert Means, Vo-Ag student at Puckett, Mississippi, has set up his own shop and accumulated hand tools and power equipment worth nearly $2000.

How did he do it? His teacher, A. G. James, says that Robert has an aptitude for welding. He took basic instruction and spent hours practicing until he became a proficient weldor. He also gained skills in woodworking, plumbing and electrical wiring.

Living on a small farm with his grandfather, Robert put his skills to work at home—and for others. The demand for his services increased and Robert put his earnings into equipment. He owns an electric grinder, band saw, drill, portable saw, jointer, sander, air compressor, turning lathe, and other equipment.

He never has to worry about what he will do during hours that for some students might be spare time. In the past year he has built base and wall cabinets for two kitchens, installed plumbing for two bathrooms, built an egg-cooling house, installed feed bins in five poultry houses, and welded the frames for 30 farm gates.

Robert's achievements already have earned him the state FFA farm mechanics award. □ □



Trailer hitch gets finishing touch with welder run by Robert Means. He has earned all his equipment by doing jobs like this for neighbors.

*FFA Exec. Sec'y, Miss. Dept. of Educ.

Electric Cow Raises Good Calves

One of the latest and most practical innovations in the raising of replacement dairy heifers is a machine that automatically mixes and dispenses milk replacer.

Until now it was a tiresome task of mixing, coaxing, and teaching calves to drink from a pail two or three times a day until the calf was old enough to eat. Aside from the labor, there was the danger of scours and the problem of calves nursing each other's ears.

Costs Less Than Cow

Dairyman James Ferguson, Ivanhoe, Texas, uses an "electric cow," as most of his neighbors call it. He is quite enthusiastic about the results. Cost of the machine is less than a fairly good cow.

The nurser consists of a hopper that holds about ten pounds of dry milk replacer and a water tank with an electric heating element. Water is heated to and held at about 98°F.; a temperature comparable to that of milk fresh from the cow. Replacer and water are released in one-quart batches into a small plastic bowl which has an agitator for mixing. The machine releases no milk until the cycle is complete.

Less Than a Half-Hour a Day

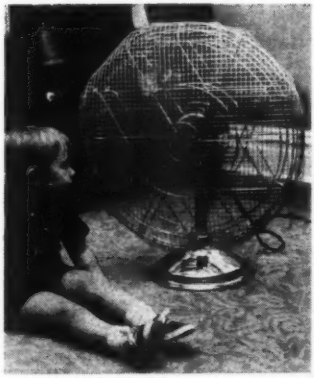
Ferguson says the filling of the milk replacer hopper and the cleaning of the machine requires less than ½ hour a day. About one gallon of replacer is placed in the "cow" twice daily for feeding 15 calves. Cleaning consists of removing the plastic bowl and nipple, and washing in warm water and detergent.

Calf-nurser handles 15 calves like this Holstein on Ferguson's farm, and he figures it could handle more.

Fewer Cases of Scours

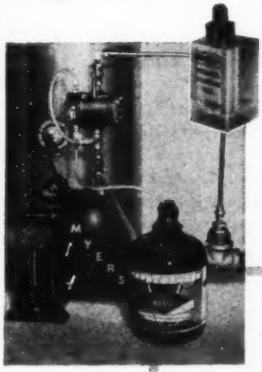
Healthy, fast-gaining calves have been grown by Ferguson. Fewer cases of scours have been another advantage. And, antibiotics or other medicine may be added to the milk replacer if needed. JAMES R. GRIFFIT

Fan Safety



Covering the large electric fan with ½-inch mesh hardware cloth allowed it to be set right on the floor for room air circulation, even with children playing right around it. Since the fan is completely enclosed, it eliminates any worry about children injuring themselves. Earl Huene, Mt. Pleasant, Iowa

NOW... *a low cost dependable way to get safe drinking water*



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ASHLAND, OHIO KITCHENER, ONTARIO

Myers

Hammer mill with 50 hp motor will grind all the corn, oats and peanut hay the Morris brothers need.

Automatic feed-processing system lets

Former Fliers Feed Beef Home-Grown Grains

By S. H. BOOKER

When twin brothers Fred and Flynn Morris returned from the war in 1946 they planned a unique way to get their Geneva County, Alabama, farm on a money-making basis. Using some of the experience gained during the war, they started a flying service until their small herd of 13 Polled Herefords could be enlarged.

A hangar, 86 by 100 feet, to be used later in their cattle operation, was built to house their light planes. During the time their herd, pastures and farming were getting established, they were dusting crops and making chartered flights.

In due time, all their efforts had to be devoted to farming, and the flying service was ended. The hangar was changed into a feed storage and processing center. There was extra space for storage and service of their farm machinery and an office.

Hammer Mill Installed

The Morris brothers knew that an efficient feed processing system would be needed if they were to carry out their planned operation. A 30 hp electric hammer mill was installed to grind ear corn, oats and peanut hay. A 5 hp, one-ton capacity mixer and a molasses blender were added to complete the installation. Three electric motors are needed to run the molasses blender—a 5 hp on the blender, 2 hp on the pump, and a 2 hp on the auger.

After several years' use, and with the continued growth of their herd, the 30 hp hammer mill was replaced with a 50 hp unit. The larger mill, by handling more feed, reduced the

time spent in grinding and offered some relief to the acute farm labor problem. The 400-ampere, 3-phase service entrance allowed enough dependable power to take care of all their electrical needs.

Fred and Flynn Morris are quick to tell you that looking after 5000 acres of land, 330 brood cows and 600 feeders, 500 acres of corn, 70 acres of peanuts, and pastures is no easy job. A large wheat and oats crop is planted each year to provide winter grazing and grain. The home grown corn, peanut hay, wheat and oats are ground and mixed with salt, mineral, and molasses to make the finishing ration for the market steers.

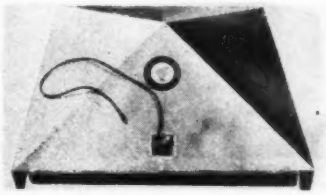
Adequate Power Makes Success

The Morris brothers will also tell you that it would be mighty hard to run their farm without the help that comes with enough electricity. □ □

Large feed mixer holds one ton, is run by 5 hp motor. The 400-ampere service allows plenty of electrical capacity for motors of large machinery.

Molasses blender uses three motors. A 5 hp runs blender, a 3 hp powers pump, and a 2 hp runs the auger. Note well-placed control panel.

CUT Brooding Costs with BAILEY'S *Electric* Brooders



Poultrymen in 10 southern states have cut their wintertime brooding costs to ½ cent or less than ½ kilowatt hour per bird by using Bailey's Electric Brooders.

Performance like this is no accident. Poultrymen and agricultural and electrical engineers designed Bailey's Model 750. The rigid 72 x 72 inch hover has ½ inch of fiberglass insulation. Temperature is automatically controlled by dial setting. Unit comes fully equipped with pilot light, attraction light, 8-foot heavy duty cord. 750-chick capacity, 1500 watts, 115-120 volts.

Bailey's electric brooders were designed from the start to be the best!

Manufactured by

L. H. BAILEY & SONS

845 Broad Street, Athens, Georgia

NEW EFFECTIVE ELECTRO-INSECT DESTROYER

For Use In Patios, Pools, Commercial Aid In Agriculture Orchards, Gardens,

Write For Details

Dealer Inquiries Invited

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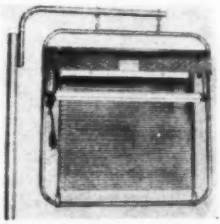


ELECTRO LADS MFG. CO.

Box 2262, Dearborn, Mich.

Fan-fogger for each 1000 square feet of floor space in Bridges' laying houses put the brakes on annual summer slump in egg production, which sometimes was 20%.

Fan-foggers let Georgia poultryman

Boost Summer Egg Production, Reduce Heat Mortality Losses

Fan-foggers in his laying houses really proved their worth last summer to Smith Bridges, of Pendergrass, Georgia. "I wouldn't be without them again," he declares.

The spark that spurred Bridges to buy 18 of the fan-fogger units early last summer was a sudden 5% drop in egg production. He figured it was the heat, and recalled that in previous years his production had dropped from an average of 60% in the spring to as low as 40% in summer.

Bridges says the layers responded quickly when the fan-foggers were installed. The 5% production loss was regained and the average production from 8,000 hens held near 60% all summer.

"I figure that the increased egg production that I got by using the fans paid for them," he declares. "Besides that, I had no mortality to speak of. The year before, I lost over a hundred hens from heat prostration."

Open Sides for Cross-Ventilation

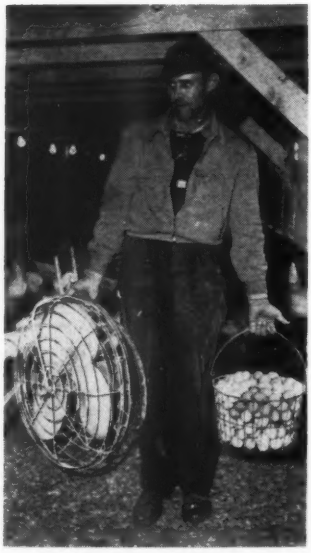
Bridges has White Rock breeders that weigh about 6½ pounds. They had been in production from three to six months at the beginning of last summer. His laying houses are open on the sides to allow cross-ventilation. He installed a fan-fogger for each 1,000 square feet of space. The units are 24-inch fans driven by ¼ hp, 1725 rpm electric motors that are totally enclosed. Two fogger-nozzles are mounted in front of the fan.

In his houses, Bridges suspended the fan-foggers about six feet above the ground. He discovered that low water pressure causes the foggers to drip and wet the house. Recommended water pressure is 25 pounds.

Fan-Foggers Start At 90°

As a general rule, the Georgia farmer says he started the fan-foggers any time that the temperature got near 90 degrees. "That means," he added, "that from May until September we operate them from roughly 10 o'clock in the morning until 8 o'clock at night. Of course, we don't use them on cloudy, cool days."

Summer, 1959, will find Bridges with a new laying house. He already has fan-foggers for it. □ □



More eggs and fan-foggers go together. Units are portable, easy to install and remove for storage. Fans have two fog nozzles mounted in front.

Q UESTIONS AND A NSWERS

Fan Power Requirements

▶**Question:** *Will shutting off the air intake to a radial fan overload the motor driving it?*

A. L.—Iowa

▶**Answer:** Shutting of the air intake should not overload the motor. However, if motor is cooled by fan air stream it may overheat if air supply is shut off.

On fans with forward curve or radial type blades, it is possible to overload the motor if air intake to fan is not controlled. Backward curve fans are non-overloading so there is no danger of overloading motor on this type fan.

Electricity Consumption

▶**Question:** *Is there a simple rule or equation that one can use to determine the number of KWHrs. used by an appliance when its wattage rating is given?*

F.T., Maryland

▶**Answer:** To find the KWHr. consumption of an appliance, multiply the wattage shown on the nameplate by the hours of operation and divide it by 1000. For example, a 50-watt lamp burning for six hours would use only .3 KWHr.

Iron in Water

▶**Question:** *Our water turns yellowish, especially from hot water faucets. How can we correct this?*

F.O., Kentucky

▶**Answer:** Yellow water is usually a sign of iron present somewhere in the system. It may be coming from your well water source or it may be due to rust in the system. If it is due to corroded pipes and tanks, about the only solution is to replace them. Iron in the water itself can be filtered out or phosphate feeders can be used to keep it in solution by chemical action.

Motor Speeds Operation

▶**Question:** *Can I use the starting winding of my ½ hp poultry ventilation fan for a "slow" speed and the normal winding for "regular" speed—thus having a two-speed fan?*

F.W.K., Penna.

▶**Answer:** It is impossible to use regular motors as two speed motors. The starting winding is not designed for continuous service over any length of time. Two speed motors have extra windings built in at the factory.

Pump Pilot Light

▶**Question:** *How can I install a pilot light in my house to show when the water pump is running?*

F.H.S., Mass.

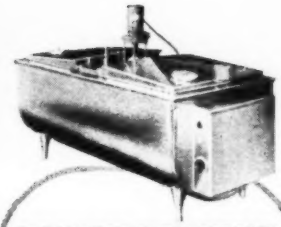
▶**Answer:** Run a pair of wires from the pump's motor terminals to the pilot light. By connecting them to the terminals of the light, it will turn on whenever the motor goes on.

Home Milk Pasteurizers

▶**Question:** *What sizes are available in home milk pasteurizers?*

C.A.B., Missouri

▶**Answer:** Home milk pasteurizers are available in sizes from 1 to 2 gallons. The temperature in these units is controlled thermostatically. The usual procedure is to place the raw milk in the container and set the timer. The electric heating element brings the milk up to 143° F. and holds it there for 30 minutes.



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Sunset Bulk Milk Coolers are made of stainless steel throughout. There's no finish to chip, crack, allow rust to get started. No re-coating, refinishing or costly maintenance as with most other finishes. If scratch occurs, protective oxide coating rebuilds itself quickly.

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WRITE today for full information & nearest dealer. New Earcorn & Grain Roller Mill makes feed go farther. 12 sizes available. Dealers & Farm Agents Wanted

AUTOMATIC EQUIPMENT MFG.
PENDER NEBRASKA

ADVERTISERS

in this issue . . .

Whenever you need further information about electrical equipment and appliances, you can depend upon the Manufacturers who are advertising in this magazine. We have indexed here for your convenience in alphabetical order the Manufacturers whose advertising is appearing in this April issue.

When writing to these Manufacturers be sure to mention you saw their advertising in ELECTRICITY ON THE FARM Magazine.

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If you are unable to get information about the particular equipment you require from our advertisers as listed above, our Reader Service Department will be glad to help you. As a reader of this magazine you are entitled to this information service free of cost.

Quick cooling and correct relative humidity help maintain egg quality. J. C. Beasley uses this ¾-ton cooler-humidifier to keep his 200-case egg storage room at 55°F. and 80% relative humidity. The unit extends through the wall to the outside, where it is protected by a wide roof overhang.

Egg cooling room is essential for

Top Egg Profits From Laying Flocks

A cooling room on the farm is essential for getting quality eggs to market. From a purely dollars and cents viewpoint, producers can't afford to take chances where the quality of their eggs is concerned.

When J. C. Beasley of Pelahatchee, Mississippi, built an egg cooling room, he provided storage capacity for future increases in his laying flock. The room is 10 by 12 by 7 feet.

The cooling unit is a ¾-ton cooler-humidifier that Beasley sets to keep temperature at 55°F. and humidity at 80%. By frequent collection, quick cooling and keeping the right amount of moisture in the air, he maintains egg quality.

The storage room has four inches of fiberglass insulation in the floor, ceiling and walls. Insulation is protected by a vapor barrier located between insulation and outer wall. Interior walls are made of ½-inch plywood. Beasley used a prefabricated egg room door because he says home-made doors warp and often prove unsatisfactory.

To further protect the quality of his eggs, he uses two mechanical egg washers that automatically keep water temperature at 110°. His electric equipment adds up to plenty of "egg insurance" for Beasley. □ □

get details on the . . .

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SAVE TIME & LABOR MAKE MONEY

VAN DUSEN & CO., INC., WAYZATA, MINN.

David L. Harrington, Crusade Chairman and the Edward Ney family of Darien, Connecticut who were models for poster in background.

Hitch Your Mouse Trap to a Cause

By DAVID L. HARRINGTON
National Chairman of the 1959 Cancer Crusade

Mr. Harrington is chairman of the board and chief executive officer of the Reuben H. Donnelley Corporation and President of the Illinois State Chamber of Commerce.

ELECTRICITY ON THE FARM *is published by the Business Papers Division of the Donnelley Corporation.*

ONCE UPON A TIME the man who made a better mouse trap didn't have to look for customers.

But in 1959 the best of all possible mouse traps won't sell without a skilled publicity campaign to tell the people—and sometimes also the mice—that this indeed is the trap of the future, a superior product for discriminating mice and men. Generally this is costly. And generally it's worth the cost.

Some years ago, however, I accidentally discovered a way of securing consumer good will at no dollar cost. And I consider this an excellent supplement to our regular public relations program. Eight years ago, without thought of profit or mouse traps, I became a volunteer for the American Cancer Society. Looking back, I suppose I joined because I was asked to. My father, who was my dearest friend, had died of cancer. Watching him die wasn't easy. Then there was my secretary—a dynamic young woman whose life was snuffed out by cancer in a few short months. These experiences might have led me to feel that you can't do anything about cancer; but there was also my dear friend and fishing companion, Jack Holland. He was operated on for lung cancer eight years ago. Last year we went on a pretty rugged fishing trip to Alaska. Jack held his own. This year, business and the Cancer Crusade permitting, Jack and I hope to catch a couple of big ones off the Isle of Pines in the Caribbean.

My friend Jack is one of 800,000 Americans cured of cancer. They owe their lives to the American Cancer Society's nationwide network of research, service and education programs.

The Society devotes millions of dollars to research. It needs many millions more.

Most of the 30-million dollars contributed to the Cancer Crusade last year came from small donors. Business and industry failed to give their full fair share. And this despite the fact that cancer costs business and industry *billions* a year in absenteeism, in lost goods and services, lost buyers and in indirect costs for medically indigent patients.

Here are a few facts every man and woman should know. Fifty thousand man-years are lost each year to business and industry through cancer disability. The disease causes more prolonged absenteeism than any other illness. The annual hospital bill for cancer is 300 million dollars a year, excluding home care and follow-up treatment. Cancer creates more medical indigents than any other disease.

Now, medically indigent families are not buyers. They cannot contribute to the community; in fact, they must be helped by it. Most of us absorb much of the cost of maintaining those whom illness has rendered incapable of helping themselves.

A healthy, thriving community contributes to prosperity. What's good for the community is good for everybody.

To get back to mouse traps by way of detour, after working for the American Cancer Society in various capacities, in 1957 I served as Crusade Chairman of the Illinois Division. This year I was asked to assume National Chairmanship of the 1959 Crusade. I knew it was a demanding job, entailing extensive travel and time away from my business. But I wanted to contribute all I could to this great cause. I accepted the chairmanship because I consider the conquest of cancer America's most urgent health need. And I'll be frank to admit that I also accepted it because I knew it was good business.

The major assets of The Reuben H. Donnelley Corporation are people, our more than a million customers and our employees. If they're in good health we benefit. The American Cancer Society helps keep them on the job.

In quite another way, my work for the Society is also good business. My public service through the Society's Crusade has gained The Reuben H. Donnelley Corporation the kind of good will that money can't buy. My salesmen tell me it helps when a customer says, "Reuben Donnelley, oh yes, your boss spoke at a big cancer meeting last night. He's doing quite a job."

My mouse trap is publishing and advertising. We keep on trying to improve our products and services. And I think we have the best public relations men in the country working for us. But there is no substitute for the welcoming warmth of a customer who knows that you are *giving* to the community as well as *selling* to it.

The Cancer Crusade has a simple, universal appeal. Cancer strikes in two out of three homes. Knock on any door, and you'll find that some member of the family or a close friend has had the disease.

If you do something for the Crusade, the Crusade will more than repay you. You will have the rewarding experience of taking part in a great humanitarian effort.

MR. M. N. YOUNG
DIR. AGRIC. EXP. STA.
POLYTECHNIC INST.
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A well-planned farm-wiring system should be safe, convenient, efficient and more than ample to allow for future expansion. It will save you many dollars in these days of scarce and costly farm labor. Reddy will even help you do the planning without cost. Yep—Aladdin never had it so good!

MORE OUTLETS and MORE CIRCUITS means MORE PROFITS

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